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ABSTRACT

The problem-solving approach in environmental education (EE), reports on EE programs and activities in selected foreign countries, and a report on the Asian Subregional Workshop on Teacher Training in EE are provided in this newsletter. The nature of the problem-solving approach and brief discussions of such methodologies as group discussion, games/simulation, experimental workshops, and "action research" used to foster problem solving are discussed. Reports from African countries (Ethiopia and Upper Volta), Arab States (Arab Gulf States), Asia (Indonesia), Europe-North America (Poland and Sweden), and Latin America (Argentina) are then provided. Various EE programs, workshops, and activities at primary, secondary, and higher educational levels are described (including aspects of formal and non-formal EE). Highlights of the Asian Workshop, designed to familiarize participants with five UNESCO-developed, pre-/in-service EE teacher training modules, are then presented. An outline of these modules is included. The newsletter concludes with brief descriptions of several EE conferences and recent publications together with sources for those desiring additional information. (JN)

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UNESCO-UNEP ENVIRONMENTAL EDUCATION NEWSLETTER

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The Problem-Solving Approach of Environmental Education

Three of the principal characteristics of environmental education (EE) involve its being interdisciplinary (see *Connect*, September 1981), problem-solving and community-based. Here the *problem-solving approach* has been selected, in its turn, for special attention.

The Tbilisi Intergovernmental Conference on Environmental Education (1977) specifically stated in its Final Report that "the central idea [of EE] is to attain, by means of growing interdisciplinarity... a practical education oriented toward a solution of the problems of the environment, or at least to make pupils better equipped for their solution by teaching them to participate in decision-making."

Implementation of the problem-solving approach is, by its very nature and goals, complex. Development of teaching strategies oriented toward the solution of problems, just as the employment of interdisciplinary educational approaches, presupposes a reorientation of the teaching/learning process and touches on educational content and methodologies, teacher training and the institutional organization of education itself. Such a thorough reform and renovation of the educational process are still to be accomplished, but in the meantime a major step can be, and is being, taken by way of putting into practice pedagogical approaches appropriate to the solution of *environmental* problems.

Generally, solving a problem implies finding a point of attack as well as the suitable means. Analytically, it involves a series of successive phases: identification of the problem, its causes and effects, formulation and evaluation of possible solutions, and finally a plan of effective action. Pedagogically, it means developing alertness to environmental problems, a creative response and a desire to participate in decision making as well as collective and personal environmental action. There is not *one* pedagogical approach for all problems: methodologies such as group discussion, games and simulation, experimental workshop or "action research" may be appropriate in various phases of the same problem-solving process.

Group discussion, to begin with, may play a role throughout the process, but be particularly useful in the problem-identification phase, since *perception* of the problem must be *social* before going on to its solution. The reality must be found behind the words, phrases, codes and signs of the participants' language, constituting an educational process in itself. Group discussion is an ideal forum for conceptual clarification, which is a prerequisite to collective action for environmental preservation.

The methodology known as **games and simulation** is specially adaptable to problem solving because of its flexibility, varieties of possible content and practicality of application at almost every phase of the process. In effect, *simulation* offers a relatively simplified, didactic representation of the complex nature of problems of the environment. It exposes the many factors implicated – natural, social, economic, etc. – as well as the values, interests and models of behavior of the various social groups – industrial, scientific, political, general

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public, etc. – which form part of the problem as well as of its solution. Games and simulation permit the student-player to view the broad diversity of situations with an interdisciplinary perspective, revealing to him or her the importance of taking into account the values and interests of the different groups at the time of identifying solutions, thus preparing the way to effective participation in the decision-making phase. Games and simulation also permit exploration of future changes in the environment so as to *anticipate* problems and their solutions or prevention.

Experimental workshops place the participants, or students, closer to reality and concrete problems by presenting them essential elements in a controlled situation for analysis and solution of a problem on a limited experimental scale. Teaching through workshops allows students to learn more effectively the practice and handling of technics, tools and technologies dealing with the natural and built environment, its resources and aspects. A workshop also permits experimentation and evaluation of alternative solutions to concrete problems, such as small-scale development of new sources of energy, etc. It is an excellent means for designing and "testing" a plan of action before it is put completely into operation. Finally, as a form of apprenticeship, it develops practical knowledge on the part of students, invaluable for the work life they are eventually to enter. (It is assumed that throughout an experimental workshop participants are constantly reminded of the *limited* nature of their experiment, in terms of its smaller scale and controlled situation as contrasted to the grandeur and multiplicity of factors – political, economic, cultural, etc. – in a real-life environment.)

The most efficacious and complex approach is "**action research.**" At the same time it is most *complete* in terms of the solution of problems, by articulating fundamental research and practical applications, both traditional and innovative. It demands of participants and students a reorganization and recombination of theories, data and technologies collected from multiple sources, a constant interaction with social "agents" – specialists, politicians, etc. – implicated in the experimentation and implementation of solutions to environmental problems. It is often a slow process of trial and error, leading to openness of mind, *savoir faire* and motivation for taking action.

The Unesco-UNEP International EE Programme (IEEP), of which *Connect* is the quarterly newsletter, is currently undertaking research and development activities contributing to the problem-solving and interdisciplinary approaches of environmental education as described above; they will be reported upon in these pages as they are completed.

African Country Reports on Environmental Education

Ethiopia

The government of Ethiopia has begun to take measures to educate the people through formal and nonformal educational programmes to conserve soil, water, forest, wildlife and monuments of their country. Environmental sciences as such are not being taught, but environmental elements and themes are incorporated into various subject matters of both the primary and secondary school.

From grade 7 through grade 10 pupils in natural science first "discover the environment," then go on to "habitats of living things" and "conservation of natural resources." In the social sciences, commencing with geography in the lower primary school, there is a similar progression from study of the immediate environment to basic principles of conservation. The third subject area which includes environmental themes is home economics. Here pupils from grade 5 through grade 12 learn about "water and air pollution," "personal hygiene," "sanitation in and around the home" and "responsibility of the individual for environmental health and sanitation."

The Formal Education Department of Ethiopia's Ministry of Education has launched a Labour Education Programme which includes two environmental projects – the Water and Timber Projects. The objective of the first is to educate society, through school activities, about all aspects of water, from water-borne diseases to water preservation. A total of 218 schools are involved. The goal of the Timber Project is reforestation of the country through its students; 2170 schools are participating, each school planting trees in an area of four hectares.

Nonformal environmental education is conducted by various ministerial departments and public organizations, such as the Peasants Association, the All-Ethiopian Trade Union, the Women's Association, the Youth Association and the Urban Dwellers Association. There is an educational component in all their public environmental campaigns. The ministerial bodies most involved are Land Use Planning, the Forestry and Wildlife Conservation and Development Authority, the Ethiopian Water Works Construction Authority and the Adult Education Department of the Ministry of Education. The role of the mass media has proved most important.

Under way since October 1980 is an experimental project for grades 1-3, which integrates biology, history, geography, political education, home economics and health into a single subject, namely, environmental science. Twenty-five elementary schools participated initially. In each school one classroom has been set aside to serve an experimental class. Three other subjects are also taught: handicrafts, Amharic (the national language) and mathematics. An interdisciplinary committee developed the curriculum and materials for the experimental programme and shortly before the school year began teachers were invited to the Curriculum Development

Center and given a two-week orientation course through workshops. The experiment has already resulted in attitudinal and behavioral changes not only on the part of the pupils but also of their teachers and the community. The environmental education project has since been expanded to 70 schools of Ethiopia.

Upper Volta

As a direct result of the Tbilisi Conference of 1977, the Institute of National Education of Upper Volta organized, with the support of the International EE Programme, a national training workshop for natural science teachers, 17-20 December 1979, which dealt with the country's environmental problems and the role of environmental education. Three commissions devoted themselves to (1) origins of the nation's environmental problems; (2) how best to introduce EE into secondary-school education, involving methods, materials and approaches; and (3) proposals for an EE programme directed at rural and urban populations. Discussion of the last two themes involved consideration of measures for evaluating adequate EE teacher training.

Subsequently Upper Volta's Ministry of National Education, Arts and Culture, with the support of the International EE Programme, developed an experimental project which aimed at introducing environmental education into rural primary schools in the context of the country's drive against desertification. The EE project was conducted by the ministry's Institute of Pedagogical Reform and Action, 1980-82.

Among the activities conducted was a preliminary training workshop for 150 teachers and administrators who would be involved in implementation of the experimental project. Educational materials were also prepared concerning (1) the protection and rational use of natural plant and animal resources; (2) soil conservation; (3) the production of energy by means of appropriate technology; and (4) preventive measures for improving public health conditions. These materials were tested and evaluated by a group of 38 primary schools. The positive results obtained have since led the government to extend its development of EE at the primary-school level to other areas of the country.

At the secondary-school level in the meantime, an ecological programme has been instituted which includes field trips and local environmental problem solving. Environmental experts and specialists – engineers, agronomists, public health experts, et al – are trained in Upper Volta's professional and polytechnical schools.

The Arab States' Country Report on Environmental Education

The Arab Gulf States

Included among the Arab Gulf States are Bahrain, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. Educationally, they are members of the Arab League Educational, Cultural and Scientific Organization (ALECSO), which is one of the specialized agencies of the Arab League, with headquarters in Tunisia.

Interest in the development of EE was stimulated by the UN Conference on the Human Environment, held in Stockholm, 1972, and was led particularly by biologists and biology educators of the subregion. Indeed, an ALECSO biology project was the starting point, followed by an integrated science project, "Man and his Environment," for grades 7 to 9, and the publication of two source books. (These and later efforts were reinforced by the Unesco-UNEP International EE Programme.) Because of the regional projects, environmental education is presented primarily as an integrated part of school biology courses and syllabi, particularly concerning pollution, natural resources, food problems, environmental balance and desertification.

EE at the tertiary level is also presented principally in relation to biological studies, as can be noted in the examples following. In Bahrain, a course on "Population and Environmental Education" is presented in the Education Department of the University's College of Arts, Science and Education. In Kuwait, "Man and Natural Resources for Food, Clothing and Medicine" is provided by the Teachers' Training Institute; the course is environmentally oriented biology. The Faculty of Educational Studies of Kuwait University offers an EE course developed and taught by a professor of biology education. Qatar University similarly has an EE course, "Man and the Biosphere," taught by a biologist. The College of Education in Abha, Saudi Arabia, provides an EE course developed and taught by two biology educators.

Since the Intergovernemental EE Conference of Tbilisi in 1977 there has been a particularly strong movement in the Arab Gulf States to approach EE in an interdisciplinary (infused) manner. This was preceded in 1976 by a preparatory regional meeting organized in the framework of the Unesco-UNEP International EE Programme and held in Kuwait, followed almost immediately by an EE workshop organized by ALECSO. Three resource units were developed at the latter for environmental educators at the primary, intermediate and secondary levels, respectively. "My Homeland" constitutes the core for primary schools, "Natural Resources" for intermediate and "Energy" for secondary schools. Similarly, IEEP organized, 12-19 May 1981, a regional EE training workshop in Bahrain for key personnel to formulate strategies for curriculum development and teacher training at the national level. Bahrain had also undertaken, with IEEP support, the adaptation of the "Module for In-service Training of Secondary School Science Teachers and Supervisors in EE" to the local environment and needs of the nation's teachers.

Nonformal or out-of-school EE activities in the Arab Gulf States are many and varied, due to the efforts of both governmental and non-governmental bodies and organizations of the Gulf area. The following are among the principal nongovernmental groups which are particularly active: The Saudi Biological Society, which plays a major role in the preservation of wild life through educational programmes; the Iraqi Environmental Protection Society, newly established, whose activites are mainly publications for stimulating public awareness; and the Kuwait Environmental Protection Society (KEPS), which is the most active environmental body in the Gulf area.

KEPS was organized in 1974 specifically "to promote public awareness of, and provide information on, protection of the environment as well as encourage collective efforts aimed at solving present and future environmental problems." Its activities extend beyond the borders of Kuwait and include a regionally distributed bi-monthly publication on environmental issues. Governmental organizations engaged in nonformal EE, such as Oman's Council for Conservation of the Environment and Prevention of Pollution and Kuwait's Department of Nature Protection, function largely by involving people in competitive environmental protection activities.

The Arab Gulf States are joined by Iran in the Regional Organization for the Protection of the Marine Environment, which was established in 1979 with headquarters in Kuwait. A Department for Environmental Awareness and Public Relations has since been formed within the organization for the purpose of conducting EE workshops and producing a newsletter, environmental films, a TV series and other materials, such as environmental calendars, booklets, audiovisuals, press packages for specific events, etc.

Asian Country Report on Environmental Education

Indonesia

Rational use of Indonesia's natural resources is part of state policy and the country's Five Year Development Plan resulting in a law regulating environmental management for the purpose of protecting and enhancing environmental quality. The law is recent (March 1982) and it recognizes that a well informed, environmentally educated citizenry is necessary for its realization.

Concern about EE, however, preceded the environmental law, involving a Workshop on Education and Information Concerning Awareness of the Environment in 1976 which led to the important Workshop on Environmental Education, held a year later and sponsored by the Indonesian Committee for the Man and the Biosphere (MAB) Programme and the Office of Environment of the Municipal Government of Jakarta. The widely accepted conclusions of the latter were, among others: (1) that formal EE should begin as early as possible in the school system, and (2) that a nonformal EE programme and campaign were needed to stimulate public awareness of the environment and its problems.

As a consequence, an overall EE Pilot Project, supported by IEEP, with two committees for environmental education was established; the first, a team for formal EE; the second, a team for nonformal EE. The first team was charged with a number of tasks, notably to study existing school curricula so as to determine the appropriate points for introducing EE as well as the best teaching/learning approaches, to develop EE modules, to organize in-service environmental training of teachers and to test the modules produced in selected primary schools of Jakarta on an experimental basis. The second team was alloted the task of launching a large EE campaign aimed at stimulating people's awareness of the importance of the environment and their interaction with it. Further tasks were to identify environmental problems and issues, both locally in Jakarta and nationwide; to develop a relevant EE programme for the public based on the identified problems and issues; and to determine methods and approaches for implementing the programme.

Generally guiding both the formal and nonformal EE teams is the Development Board, under which the Evaluation Board's function is to offer technical assistance and advice. Indonesia's Center of Research on Urban Life and Environmental Problems was specifically designated to direct the EE Pilot Project, since it would be most involved with experimental testing of the project's results. The Development Board, in turn, is responsible for eventual dissemination of EE throughout Indonesia after evaluation of the project.

The *formal EE team*, upon finishing a study of existing school curricula, concluded that integration of environmental themes into current subjects of grades 4, 5 and 6 was the best approach. Accordingly it prepared the course content of several subject areas along these lines. After approval by the Office of Educational and Cultural Research and Development of the Ministry of Education and Culture, a group of qualified writers was formed to develop teacher modules based on the team's guidelines. Teachers implementing the EE Pilot Project in primary schools were specially trained in the use of the modules by those who had prepared them. Fifteen school teachers of five state elementary schools in Jakarta were initially involved.

The five schools were assigned as the testing ground for the project, because each represented a different area of development, social surrounding and environmental situation. Successful, the EE Pilot Project was extended to ten other schools (with teachers specifically trained in each) and is to be expanded throughout the primary schools of Indonesia, concurrent with the development of an EE programme for schools at the secondary level.

Environmental education at the university or tertiary level has followed another course of development, due to the number and variety of development projects and environmental situations. Consequently, a network of environmental centers has been established in 28 universities of the country with three forming the pioneering nucleus: the Institute of Applied Ecology, Padjadjaran University, Bandung; the Center for Natural Resource Management and Environmental Studies, Bogor Agricultural University; and the Center for Environmental Studies, Bandung Institute of Technology. Each of the 28 centers offers a special area of environmental studies; all are formally covered by an agreement between the Minister of State for Supervision of Development and Environment and the Minster of Education and Culture. The centers are charged with research on their local environment and provision of information for balanced regional development by the planning office of the regional government. The centers also conduct environmental education and training that may lead to advanced degrees.

The *nonformal EE team*, as mentioned, based its campaign among the public on local environmental problems which it previously identified. Regionally, the public is reached through a regular series of lectures to youth and women's organizations with an emphasis on the environmental education of children outside the formal school system. Nationally, the educational effort is made via the mass media – movies, radio, TV and the press – and environmentally themed contests principally for children and young people such as Kampong cleanliness, poetry competition on "Water and I," "Traffic in My City," etc.

Europe-North America: Country Reports on Environmental Education

Poland

Poland's provision for implementation of the Tbilisi Conference recommendations on environmental education at the national level is contained in the country's 1980 Environment Protection Law, in which Article 11 states: "Schools at all levels are obliged to include environmental education in their curricular activities." The law further requires compulsory introduction of EE into all on-the-job training courses for workers. Provisions are also made requiring the mass media to work towards creating proper environmental attitudes and behavior on the part of the population.

Poland currently has a compulsory 8-year primary school plus a choice between a 4-year general secondary school and a 3-, 4- or 5-year vocational school. EE is included in curricula at all levels beginning with preschool education. At the primary level the leading role is played by courses in biology and geography, though environmental themes are also included in the teaching of chemistry, technical and civic education. This practice continues throughout general secondary school as well, with more intensive EE treatment in chemistry and especially in biology.

Vocational school students acquire environmental education according to their future profession: environmental themes and rational economic use of natural resources are integrated into their general and special curricula. Students of both general secondary and vocational schools may write their final examination or diploma thesis on environmental issues. Every year the Ministry of Education and the Nature Protection League organize a competition for the best thesis on protection and management of the environment.

Considerable attention is given to the environmental training of biology and geography teachers, who attend a one-term course in ecology and environmental protection. The course consists of 30 hours of lectures and 45 of classroom work. There are also optional post graduate courses in environmental protection and management. Since 1978 EE textbooks for teachers and the general public have been produced and efforts made to keep them up to date. Since the Tbilisi Conference, many other educational aids have been produced, such as slides, films and graphs. There are also special environmental laboratories organized at schools where practical classes and optional group work take place. A national training workshop for formulating strategies for the development of EE was organized, 2-11 September 1980, with the support of IEEP.

In *nonformal or out-of-school EE*, an important part is played by various organizations, notably the Nature Protection League. In cooperation with youth and student organizations as well as adult groups it mobilizes tree planting and reforestation campaigns, sets up school nature camps and environmental research centers for young naturalists. As usual, the mass media – cinema, radio, TV and the press – also play an essential role in environmental education of the general public. Regional nature museums and zoological and biological gardens are centers of EE activities and often have special educational rooms.

Dissemination of general and specialized environmental knowledge is a primary function of the newly established Environmental Education Group working within the Man and Environment Scientific Committee. It has organized several scientific conferences to this effect among key governmental, teaching and scientific personnel, and has published materials useful in both formal and nonformal EE as well as the in-service training of teachers. It is furthermore conducting research in interdisciplinary contents and methods of biology and geography education. Similar research is being conducted in EE generally by Poland's Institute for School Curricula, particularly for general secondary schools.

Sweden

Environmental education is recognized in Sweden as an essential component of environmental policy. (Sweden was host to the UN Conference on the Human Environment in 1972.) The National Board of Schools has stated that "environmental protection is one of the essential tasks of modern society... The school system must therefore give pupils a basic orientation as to the nature and scope of these issues, trying to instill a sense of responsibility as private individuals and future citizens for helping to put an end to environmental pollution and destruction, and preparing a healthy living environment for themselves and subsequent generations."

In practice environmental concern is an important element in these subject areas: local studies (grades 1-3), general science and social studies (grades 4-6), biology, chemistry, physics, geography, social studies, history, religion (grades 7-9). The extent depends on teacher awareness and training, available instructional materials, time for practical exercises, etc. Much material is produced by the Environment Protection Board in cooperation with the National Board of Schools. EE material has also been produced as part of a major project conducted by the Working Group for Nordic Cooperation in Schools under the Nordic Council of Ministers, which has additionally developed educational methods and held teacher-training courses (see *Connect*, December 1982).

The most noticeable developments in EE have taken place at the upper secondary level. About 80 schools now offer an alternative course in environmental technology as part of the natural science curriculum. An environmental dimension is integrated as well into the other disciplines. At the university level biology education has been oriented towards conservation, lake restoration, wild-life management, etc., largely by addition of new courses. Occupational health and safety has also received increased emphasis. An important development of the 70s has been establishment of a three-year programme of studies for the training of municipal health inspectors, who deal with pollution control and environmental protection. Many of the newly created regional colleges have initiated EE courses and programmes of study.

Nonformal EE activities on the part of adult education associations reached their high point in the mid-70s, when approximately 75,000 persons participated in the educational courses. Basic materials were designed by Sweden's Industrial Safety Council. Voluntary organizations, particularly the Swedish Society for Conservation of Nature, have since considerably augmented their output of EE materials. Other environmental groups, such as Friends of the Earth, the Environment Center, etc., are increasingly involved in the organization of study circles and other types of nonformal environmental education.

Latin American Country Report on Environmental Education

Argentina

Environmental education and management are two inseparable components of the EE programme of Argentina's Dirección Nacional de Ordenamiento Ambiental (Environmental Planning). Environmental education itself is viewed as a lifelong interdisciplinary process making people aware of their environment and developing the knowledge, attitudes and skills necessary to maintain harmony between them and their environment.

Incorporating an environmental approach into the education system at all levels is one of the principal preoccupations of the Dirección Nacional and deemed a task requiring coordination with and the support of the Ministry of Culture and Education. Considerable progress has been accomplished, particularly in integrated science teaching but also in the natural and social sciences at the *primary level* and in geography and biology at the *secondary*. Various pilot projects in this direction have been significant and effective. Since 1980, especially, thanks to interministerial cooperation, there has been advance in curricular reform and experimentation. EE training courses and instructional materials for teachers at all levels.

An important national EE training workshop was held in Buenos Aires in June 1980 as an activity of the Unesco-UNEP International EE Programme. The participants were key personnel in teacher education, curriculum development, educational supervision and environmental planning. (See *Connect*, March 1981, for more details.) One result of the workshop was the designing of modules with concrete environmental themes for virtually all subject areas of secondary-school curricula. Another consequence was the publication of a relevant booklet jointly by the Ministry of Culture and Education and the Ministry of Public Health and the Environment. The workshop had the prior preparation of a four-day EE course for some 120 teachers and was followed by a series of meetings in 21 provincial capitals for the indoctrination of some 1,500 officials in various educational guidance agencies of the government.

Emphasis has since been placed on further development and refinement of teacher training, particularly for environmental education at the secondary level in all subject areas and on an interdisciplinary basis. In this connection are foreseen a special EE training course, design and development of interdisciplinary modules and

the conduct of experimental EE pilot projects among students whose results will be tested and disseminated. Activities of provincial regions, such as Patagonia and Cuyo, are particularly to be noted; they include regional training courses for concerned personnel, development of educational units, games and materials with environmental themes, etc.

At the *university level*, marked attention is paid by the Dirección Nacional de Ordenamiento Ambiental to preparation of the teaching staff in close cooperation and coordination with the public and private universities involved. Officials of the Dirección Nacional help organize and participate in seminars, "environmental days," and lecture courses aimed at extending EE throughout the universities. The holistic approach of environmental education has opened hitherto unexplored possibilities for the development of problem-solving, integrated and interdisciplinary programmes for work directly in the field.

Other perspectives involve the postgraduate training of environmental experts (sanitation engineers, environmental impact evaluators, et al), the training of more generalized experts, such as urban planners and land managers, and, at the undergraduate level, the incorporation of an environmental dimension in training for all careers. In this connection, a workshop on EE university training, held in 1980 at the University of Blegrano, is worth particular mention. Its final report has made available much information about the state of EE at the university level throughout the world and particularly in the Latin American region, especially promotion of environmental education in all training programmes so as to meet the necessity for sound ecodevelopment, that is, development with full consideration of environmental factors.

In this last connection, the training of all those in the public sector who are engaged in any aspect of environmental management is considered among the highest priorities, to which ten international, national and local workshops have been devoted. Noteworthy are the workshops conducted in the framework of the Programme for the Training of Experts in Human Settlements, each of which lasted two weeks and involved interdisciplinary teamwork among the participants, consideration of local environmental problems, case studies, and the like. One of the first of the workshops or courses was aimed at the EE training of EE trainers. Others dealt with subjects such as "The Environmental Impact of Large Dams in Regional Development," with on-site emphasis placed on the Salto Grande Dam. In many cases experience has shown the need for on-the-job EE training of those already engaged in local development activites or projects and other training actions on request from local public organizations.

Nonformal environmental education in Argentina has generally involved promotion and participation in World Environment Day – posters, primers and packets of didactic materials were distributed to some 3,000 establishments during the last celebration; and development of audiovisual materials for use inside as well as outside the school system – for example, a successful film, titled "Growing without Destroying," three teaching/learning units, titled "The Living Orchestra" (10,000 students have seen it), "The Earth on Loan" and "The City". Other instructional materials being planned or prepared by the Dirección Nacional de Ordenamiento Ambiental as part of its EE Programme include leaflets, special didactic materials and guidelines, technical publications and general information booklets. The broadest cooperation has been achieved in celebration of World Environment Day with the participation of universities as well as public environmental organizations and the invaluable support of the mass media – radio, television and the press.

Asian Subregional Workshop on Teacher Training in Environmental Education

An Asian subregional workshop on teacher training in environmental education, organized by India's National Council of Educational Research and Training in the framework of the Unesco-UNEP International EE Programme, was held in New Delhi, India, 3-16 March 1983. Among objectives of the workshop were (1) familiarization of teacher educators with the content of the series of pre- and in-service EE teacher training modules prepared by Unesco; (2) exploration of efficient and economic ways of locally adapting and using these modules; and (3) the exchange of information and experience in the development of EE in the Asian subregion.

There were twenty-five participants representing Afghanistan, Bangladesh, India and Sri Lanka as well as a Unesco representative. Four working groups were formed for a discussion of all five modules in terms of adaptation to participating countries. Plenary sessions considered country reports and strategies for both development of an EE curriculum and the EE training of teachers and modalities for local adaptation of the modules.

The five modules deal respectively with (1) pre-service training of primary-school teachers and supervisors; (2) in-service training of teachers and supervisors at the same level; (3) pre-service training of secondary-school science teachers and supervisors; (4) in-service training of science teachers and supervisors at the same level; and (5) in-service training of social studies teachers and supervisors at the secondary-school level. There was general agreement that each module was adaptable to the participating countries with the provision that local environmental needs and considerations be made part of the contents. In each case suitable institutions were identified in participating countries for the task of adaptation of the modules to their countries. (*For the Final Report of the Asian Subregional Workshop on Teacher Training in EE, which includes major speeches, country reports and reports of the working groups on each of the teacher-training modules, write to: D.E.S.M., National Council of Educational Research and Training (NCERT), Sri Aurobindo Marg, New Delhi-110016, India*).

EE News and Publications

The XXI General Assembly of the International Union of Biological Sciences **(IUBS)** was held in Ottawa, Canada, August 1982. With the cooperation and support of the **Unesco-UNEP IEEP,** a symposium was convened by the Commission for Biological Education of IUBS on *Environmental Education through Biology*. Its basic aims were (1) to review key issues of EE and the role biology plays in them; and (2) to propose strategies and materials for EE, especially for developing countries. Participants represented some 30 countries. For more information, write: IUBS, 51, boulevard de Montmorency, 75016 Paris, France.

A special number of *Uniterra* (No. 2, 1982), 76 pp., has been published by **UNEP** (United Nations Environment Programme) in several languages. It is titled "The Environment – Ten Years On, 1972-1982" and contains summary coverage of a meeting of 105 UN Member States on the occasion of the 10th anniversary of the original Stockholm Conference on the Human Environment. UNEP has also published a booklet on *The State of the Environment 1972-1982*, dealing with environmental trends, issues and approaches during the 1970's and prospects for the future. Write to: Information Service, UNEP, P. O. Box 30552, Nairobi, Kenya.

The **Council of Europe** has issued two folio-sized brochures of special EE interest. The first, titled *An Outward-looking Approach in Schools*, was prepared by the Foundation for European Environmental Education and is based on an international colloquy which brought together some 60 experts from 15 countries to explore (1) fostering an outward-looking approach in schools, and (2) bringing about a new approach to teaching people/environment relationships. The report includes case studies. The second brochure, titled *Town Farms*, is part of the Council's Nature and Environment Series and deals with the creation and use of small model farms in town settings for EE purposes. Write to: Council of Europe, BP 431 R6, 67006 Strasbourg CEDEX, France.

UNICEF (United Nations Children's Fund) has produced three handsome development education kits, Nos. 13, 14 and 15, each containing a set of color slides and commentary, background notes and activity sheets. No. 13 is titled *The Desert Child – Fatimetou of Mauritania*; No. 14, *The Mountain Child – Oscar of Peru*; No. 15, *The Rainforest Child – Pauline of Malaysia*. Each explores a distinct environment and its effect on a child who lives there, as described by the child. For more information about the series which is intended for TV use, write: UNICEF, Palais des Nations, CH-1211 Geneva 10, Switzerland. ◆ Much of the special *Bulletin* (Dec. 1982) of the Unesco Regional Office for Education in Asia and the Pacific, titled *Out-of-School Science and Technology Education in Asia and the Pacific*, involves local and national environments both as setting and theme. It is virtually an EE sourcebook for the region, containing country reports on 15 of its nations. For information, write to the **Unesco** regional office, as above, P. O. Box 1425, GPO, Bangkok 10500, Thailand.

A bilingual French-English glossary of environmental terms has been published by **OECD,** 4, rue André-Pascal, 75016 Paris, France. ◆ *Bulletin* No. 1-3, 1983 of the IUCN (International Union for Conservation of Nature and Natural Resources) reports in full on the agreement between **IUCN** and **IPPF** (International Planned Parenthood Federation) for protection of the global environment and reduction of the pressure of population growth. An explanatory booklet on the IUCN Commission on Education, that is, environmental education, is also available by writing to: IUCN, 1196 Gland, Switzerland. ◆ The **WWF** (World Wildlife Fund)/IUCN International Education Project offers a catalogue of its audiovisual presentations. Address: Greenfield House, Guiting Power, Glos GL54 5TZ, United Kingdom.

Under the title **Environnement africain,** ENDA is continuing to publish material of African EE interest in series form (French only). Among the most recent are: *Aménagement et gestion environnementale en Afrique – jeux pédagogiques et formation, Gestion de la faune sauvage – facteur de développement ?* (a book of 312 p.), *Planification villageoise* and *l'Art vétérinaire des pasteurs sahéliens*. Write to: ENDA, B.P. 3370, Dakar, Senegal. A full report is now available containing presentations, discussions and conclusions of the 1982 **European Conference** on *The Challenge of Conservation in Naturparks, Parcs Naturels, National Parks (UK) and Equivalent Reserves*. Write to: Principal, Peak National Park Study Centre, Losehill Hall, Castleton, Derbyshire, UK. ◆ National parks and equivalent reserves are also the subject of an entire issue of *De Toute Urgence*, August 1982, a French-language periodical devoted to the rational use of the environment, published by the Conseil Québecois de l'Environnement, C. P. 39, Sillery (Québec), G1T 2P7 Canada. ◆ Articles on "A regional environmental education campaign in support of World Conservation Strategy" and "Training people for the job/of ensuring drinking water and sanitation in Brazil/" are among others of special EE interest in **The Environmentalist,** Spring 1983, Elsevier Sequoia S.A., P.O. Box 851, 1001 Lausanne 1, Switzerland. ◆ *Population and environment* is the overall theme for articles in the magazine **People,** Vol. 10, No. 1, 1983. Write to: IPPF, 18-20 Lower Regent Street, London SW1Y 4PW, England.

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